



Towards operationalization of climate-smart agriculture institutional innovations in West and Central Africa

AICCRA Report



AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



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December • 2023

To cite this report

Kpadonou, G.E., Ganyo, K.K., Segnon, A.C., Ngaido, A., Diallo, Y., Lamien, N., Zougmoré, R.B. 2023. Towards operationalization of climate-smart agriculture institutional innovations in West and Central Africa. AICCRA Report. Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)

Acknowledgements

This report is an output of the collaborative partnership between AICCRA West Africa cluster and CORAF through (i) the Comprehensive Africa Agriculture Development Program ex-Pillar 4 (CAADP-XP4), funded by the European Union and managed by IFAD, and (ii) the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) project. The authors are grateful to Mr. Kader SABI-PATE and Mr. Dieu-Merci AKONKWA for their assistance in collecting information on sources and mechanisms for funding climate change initiatives in West and Central Africa. Our acknowledgments also go to all the members of the regional Alliances of CSA in West and Central Africa and Dr Yamar MBODJI for facilitating the various stakeholder's consultation meetings.

About AICCRA Reports

Titles in this series aim to disseminate interim research on the scaling of climate services and climate-smart agriculture in Africa, in order to stimulate feedback from the scientific community.

Photos

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About AICCRA



Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture. It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank. Explore our work at aicra.cgiar.org

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ABBREVIATIONS

AICCRA	Accelerating Impacts of CGIAR Climate Research in Africa
CA	conservation agriculture
CAADP	Comprehensive Africa Agriculture Development Programme
CGIAR	Consultative Group of International Agricultural Research Centres
CIAT	Centre for Tropical Agriculture
CSA	Climate Smart Agriculture
CSAIP	Climate-Smart Agriculture Investment Plan
FAO	Food and Agriculture Organization of the United Nations
NGO	Non-Governmental Organisation

ABSTRACT

Accelerating the scaling of climate-smart agriculture (CSA) requires institutional innovations and interactions among stakeholders operating across scales. The West Africa CSA Alliance (WACSA) and the Central Africa CSA Alliance (CACSA) are two CSA institutional innovations operating at regional scale and aimed at facilitating dialogue and discussions among stakeholders, as well as fostering collective actions to transform and reorient agricultural systems in face of climate change. Through CAADP-XP4 and AICCRA programs, the West and Central African Council for Agricultural Research and Development (CORAF) has initiated actions aimed at reinvigorating these CSA alliances through the co-construction of sound regional programs. To this end, a mapping of sources and mechanisms of funding of climate actions and initiatives in West and Central Africa was conducted. A total of about 80 relevant funding sources and mechanisms were identified for WACSA, while for CACSA, about 59 relevant sources and mechanisms of funding were identified. These funding sources and mechanisms are to be leverages to mobilize resources to reinvigorate the WACSA and fully operationalize the CACSA to benefit the two regions. Next to this stocktaking exercises is the formulation and development of the regional CSA program concept notes. Through this co-construction process, the strategic components of the regional programs have been identified. The strong commitment of regional and national institutions to support the operationalization of the alliances and the participatory approach used for the co-construction of the alliances are key leverage points to keep up the momentum on the CSA alliances in the two regions.

BACKGROUND

Climate change is a global phenomenon that is increasingly affecting many aspects of human life. The agricultural sector remains the most affected by the adverse effects of climate change, with recurrent droughts, erratic and torrential rainfall causing floods, violent winds, the emergence of new diseases, etc. The direct consequence of these impacts is a decline in agricultural productivity, a loss of yields and cultivated areas, and a fragility of natural ecosystems in general, as well as of the food system and, by extension, an imbalance in the human and animal nutrition system (Carr et al., 2022; Trisos et al., 2022). There is a growing demand for solutions of various kinds: (i) at the technical and local level: proposing and scaling up climate-smart practices and technologies; (ii) at the political level: policy-making and substantial support for farmers; (iii) at the socio-economic level: networking the various actors in the relevant value chains through the establishment and operation of innovation platforms. Whether adaptation and/or mitigation/sequestration, these different solutions must contribute to the effective transformation of agricultural systems ensuring more resilient to climate change.

There is an urgent need to accelerate climate actions. This imperative is now reflected in the mainstreaming of climate change-related challenges in international and national policies in several countries around the world (Morgan and Di Giulio, 2018). However, the effectiveness and the sustainability of such initiatives can only be achieved within a formal framework of ongoing discussion among stakeholders (Totin et al., 2018). Zougmore et al. (2019) have shown that science-policy dialogue platforms are an innovative approach to effectively engage decision-makers and sustainably integrate climate change into development planning at different levels of the system: local, regional, national and international. In fact, SPIs are multi-stakeholder platforms that provide a legal framework for the different actors in a given sector, as well as policy makers, to reflect on the common challenges facing the production system. They bring together a large part of the different sociological characteristics and available socio-economic means that can be used to address the various challenges identified in a participatory way and to improve the productivity of the system (Van Rooyen et al., 2017).

This intervention strategy is also used by the West and Central African Council for Agricultural Research and Development (CORAF). For a number of years, CORAF has been working through its networks of researchers from National Agricultural Research Systems (NARS) in 23 countries, with the support of its technical and financial partners, to propose climate-smart technologies and innovations to agricultural stakeholders, under the aegis of innovation platforms set up in various countries to adapt to climate change and reduce greenhouse gas emissions. As part of its work on climate change, CORAF is piloting two flagship projects: (i) the Comprehensive Africa Agriculture Development Program ex-Pillar 4 (CAADP-XP4), funded by the European Union and managed by IFAD, and (ii) the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) project, funded by the World Bank's International Development Association (IDA) and managed by the International Bioversity Alliance & CIAT. These projects provide technical support to CORAF's efforts to promote climate-smart agriculture (CSA) in West and Central Africa. In order to advance its actions in the fight against climate change, CORAF is committed, since 2017, to the establishment of two regional alliances on CSA (one in West Africa and one in Central Africa) to facilitate the appropriation of the concept and promote a new dynamic in the fight against the negative impacts of climate change in the sub-region (Segnon et al., 2022). This report looks back at the process of setting up these two alliances, how they operate, the lessons learned in implementing their actions and the outlook.

THE NEED TO ACCELERATE THE SCALING OF CLIMATE SMART AGRICULTURE IN WEST AND CENTRAL AFRICA

Following the launch of the CSA approach by FAO in 2010, the main challenge has been its uptake and scaling at different levels of decision-making and implementation. Today, the main challenge remains the mass adoption of climate-smart technologies and innovations, as well as building the capacity of agricultural stakeholders in CSA. Ogisi and Begho (2023) concluded that the existing literature showed that the rate of adoption of CSA practices in SSA is comparatively low and this rate varies greatly across the region. This challenge is being addressed by institutions at regional level, such as the Regional Agency for Agriculture and Food (RAAF), the technical arm of the Economic Community of West African States (ECOWAS), and at international level, such as the CGIAR centre Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), through a series of training courses on the CSA approach at both country and regional scales in West Africa (Kpadonou et al., 2023). In fact, the CSA approach has a threefold advantage, taking into account (i) the sustainable increase of agricultural productivity and income; (ii) the adaptation and strengthening of resilience to the effects of climate change; and (iii) the reduction or elimination of greenhouse gas emissions. This status introduces a degree of complexity that can only be addressed through capacity building (Kpadonou et al., 2023).

RESPONSES FROM CORAF AND PARTNERS THROUGH AICCRA AND CAADP-XP4 PROJECTS

Commitment of CORAF and its partners to CSA and agroecology

The promotion and scaling up of proven technologies and innovations, including climate-smart and agroecological ones, is one of the pillars of activity of the CORAF Operational Plan 2023-2027. Thus, the promotion of climate-smart and agroecological technologies and innovations is the common thread running through the activities of the institution, the coordinator of agricultural research in West and Central Africa, which has largely taken this into account in its 2023 Annual Work Plan and Budget (AWPB). CORAF has made considerable efforts to scale up climate-smart technologies and innovations, using various dissemination mechanisms such as innovation platforms and technology parks (Kpadonou et al. 2022). The implementation of these dissemination mechanisms has led to initiate and establish two regional CSA alliances: one in West Africa (WACSA), bringing together the 15 ECOWAS countries in addition to Mauritania, and the second in Central Africa, bringing together the 7 CEMAC countries. These alliances act as entry points for CSA in the two regions, and as networks for discussion and exchange between actors to encourage the emergence of initiatives based on the CSA approach. These alliances have thus helped to introduce the concept of CSA to many actors in the agricultural sector.

Establishment and operation of regional CSA alliances

Creation of the regional CSA alliances

The West Africa CSA Alliance (WACSA) was launched in June 2015 at the CSA Regional Forum, as part of the ECOWAS agricultural policy, ECOWAP/SADCAP, to transform and reorient agricultural systems to better adapt to climate change and increase resilience to drought and other adverse natural phenomena. This forum, which was part of the implementation of a series of initiatives to combat climate change in the West African region, not only led to the establishment of an WACSA, but also defined a framework for action to promote climate-smart agriculture.

Inspired by the WACSA, the Central Africa CSA Alliance (CACSA) was created in 2021 (Segnon et al., 2022), on the initiative of CORAF and its partners, from the Kinshasa meeting (DRC), a consultation meeting between the actors of the agricultural development system in Central Africa, with a threefold objective: (i) the formulation of a strategy for the redeployment of CORAF activities in Central Africa, (ii) the management of bio-risks by consolidating the fight against trans-boundary plant pathogens, and (iii) the establishment of an Alliance for climate-smart agriculture in Central Africa.

Mandate, composition and operation of the regional CSA alliances

The main role of the CSA Alliances is to bring together and facilitate the coordination of all CSA initiatives in the different regions concerned. As such, they are part of the effort to strengthen the resilience of food systems to climate shocks in West and Central Africa.

The Alliances are composed of two categories of members: "beneficiaries", who are the end users of the goods and services, and "partners", who are the providers of technology, financial resources and intermediaries. The first group is made up of agricultural development actors from Member States, regional commissions, producer organizations, socio-professional organizations, civil society and the private sector. The second group is made up of scientific and technical organizations, NGOs, research and training institutes, donors and any other body that can support "beneficiary" members in their efforts to promote CSA in the various regions.

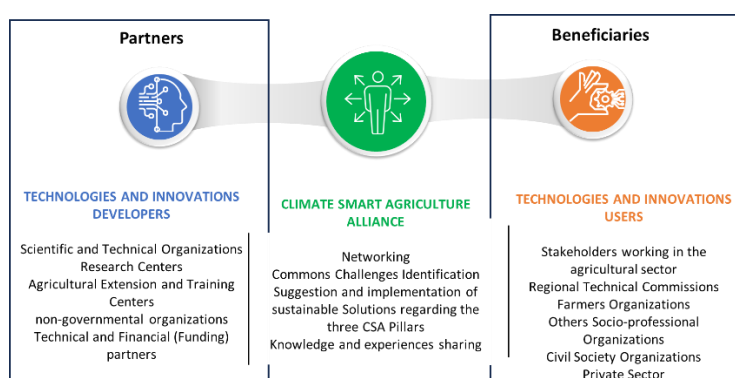


Figure 1: Composition and members of the regional CSA Alliances

CSA Alliances operate in the same way as dialogue and innovation platforms. Integrating aspects of agricultural policy, this operation is reflected in the interactions between actors, negotiations and collective actions undertaken to achieve a common goal (Schut et al., 2016). Thus, the Alliances are composed of a "Steering Committee" and a "Facilitation unit" and hold a "Members' Meeting" per year (Figure 1). In addition, for the technical operation of the Alliances, thematic working groups have been set up, such as "Investments for CSA", "Institutions for CSA", "Resources for CSA" and "Partnerships for CSA".

These different thematic working groups reflect on the challenges and propose approaches to solutions for the development of alliances.

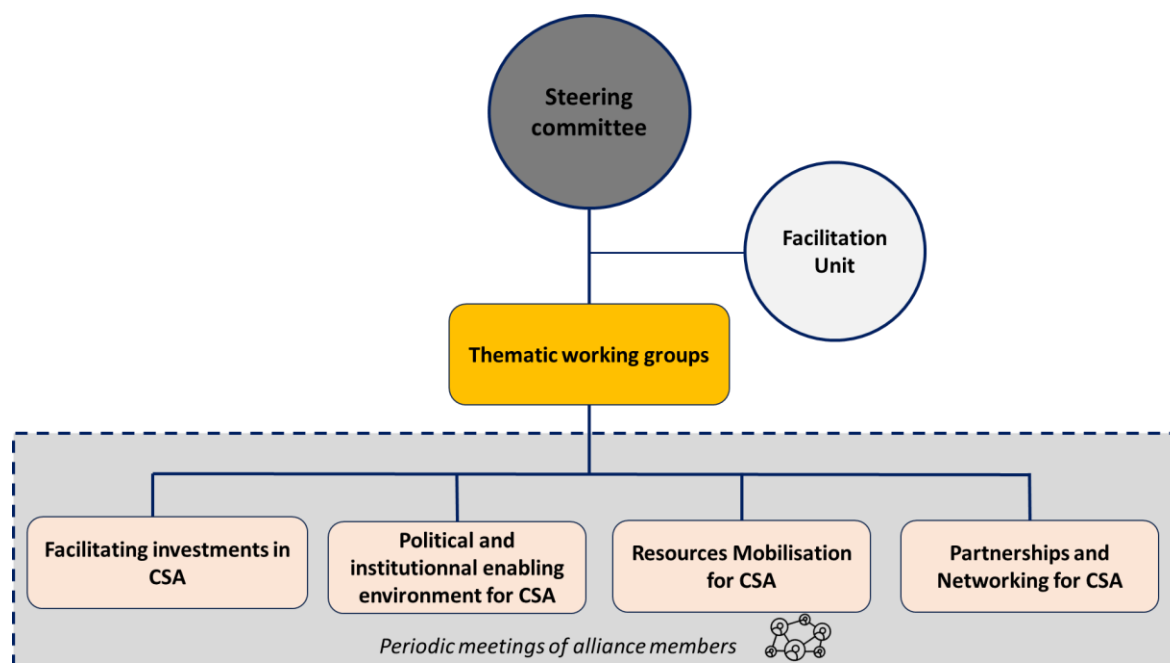


Figure 2: Organization chart of regional CSA Alliances

HISTORY AND EVOLUTION OF THE REGIONAL CSA ALLIANCES

West Africa CSA Alliance

Since its inception in 2015, the WA-CSA Alliance has been working on various issues and contributing to various meetings in the sub-region. Unfortunately, the emergence of COVID-19 slowed down the momentum gained by the members of the Alliance. In fact, during the COVID-19 pandemic, physical meetings were largely banned and/or regulated in almost every country in the sub-region, so it wasn't until 2021 that Alliance members met physically to discuss revitalizing their Alliance. A year earlier, in 2020, a political dialogue was held by video conference to improve the Alliance's intervention strategies. As a reminder, the main conclusions and decisions of the meeting in Saly (Senegal) were: (i) the initiation of a detailed inventory (current actions and priority prospects) of CSA initiatives in the sub-region; (ii) the readjustment of the intervention framework and the consolidation of the CSA Alliance in line with the options of the Bamako (Mali) Forum; and (iii) the definition of provisions for the valorisation of results, such as the creation of operational working groups for the provision of agro-climatic services, the facilitation of dialogue between actors and the mobilization of resources. To this end, CORAF has been specifically mandated to lead the Alliance's facilitation unit. To achieve this, one of CORAF's key recommendations was to support the momentum set in motion by countries and non-state actors to facilitate the operationalization of the CSA intervention framework at all levels. For country representatives, the recommendation was to revitalize or create local and national dialogue platforms

and with regional actors on the process of implementing the CSA Intervention Framework and deploying the Alliance at national level. Finally, the last recommendation to emerge from the meeting was for ECOWAS to support the momentum set in motion by countries and non-state actors to facilitate the operationalization of the CSA Framework at all levels. The different entities of the Alliance have each worked to implement these recommendations, in order to bring the Alliance to life.

The 2021 meeting in Saly (Senegal) was followed by a series of physical meetings. In 2022, a meeting was held in Lome (Togo) to discuss the demand for scientific knowledge and climate-smart technologies. This meeting concerned both regional alliances (West Africa and Central Africa). The aim was to discuss the progress of the various actions undertaken by the various bodies of the CSA Alliances. At the end of the meeting, the main conclusions were as follows:

- i. consolidating the capacity for reflection and action of the two CSA alliances (facilitating the formulation of strategic intervention axes and priority convergence actions). This formulation was based on the identification of the main climatic shocks, their effects and impacts on the ASPH (Agro-Silvo-Pastoral and Halieutic) sectors of the two regions;
- ii. (ii) the adoption of a regional synthesis of the Nationally Determined Communications (NDCs) submitted by West and Central African countries to the UNFCCC (agroforestry and fisheries dimensions);
- iii. (iii) identification in each region (WA and CA) of the 5 main concerns to be taken into account in the dialogue between decision-makers and researchers on how to promote CSA;
- iv. (iv) the inventory of pro-CSA scientific knowledge and technologies, based on information provided by CORAF, and their promotion or dissemination through the various CORAF platforms, such as the Marketplace for Agricultural Innovation and Technology (MITA);
- v. (v) Identification of constraints to the uptake of the scientific knowledge and technologies listed;
- vi. (vi) validation of the proposals made by CORAF for the structuring, orientation and operation of the platform for dialogue between decision-makers and researchers.

On the basis of these results, the following recommendations have been formulated by the members of the various CSA Alliances:

- design and implement the components of the platform,
- design and establish national dialogue frameworks,
- organize a regional workshop to upgrade national framework stakeholders,
- develop and validate a regional plan to support countries in the dialogue between policy makers and researchers to promote CSA,
- organize a regional workshop to identify country priorities,
- mobilize research to support preparations for COP 27 and support national policy-maker-researcher dialogue frameworks in implementing their priorities.

In order to implement these recommendations, CORAF has organized two regional workshops to identify the priorities of CSA alliances in each country, with a view to contributing to the development of a regional CSA program to support alliances. This workshop was held in Pointe-Sarène (Senegal) in May 2023. The objectives, conclusions and implications of the workshop are discussed in this working document.

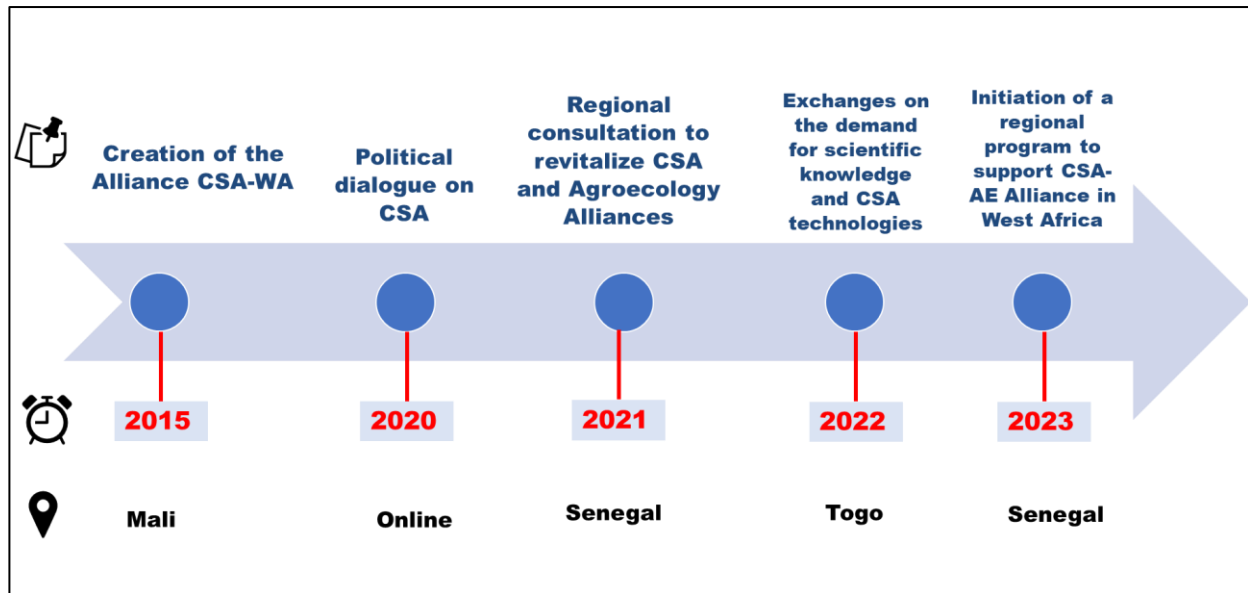


Figure 3: History and development of the West Africa CSA Alliance

Central Africa CSA Alliance

The Central African CSA is relatively young compared to its West African sister. It was born at the Kinshasa (DRC) meeting in 2021 and has held regular annual meetings up to now. The conclusions of the Kinshasa meeting, which gave birth to the CA-CSA Alliance, are as follows:

- The strong desire of ECCAS and CORAF to strengthen their partnership relations in the context of the regional agricultural policy (RAP);
- The strong experience of intervention in the region, based on the creation of regional research institutions (PRASAC, CARBAP) and the launch of major research programs by farmers and mass adoption with the vision of overcoming food insecurity in the context of climate change;
- The willingness of national (INERA, IRAD, IRAF and other NARS), regional (PRASAC, CARBAP, CEBEVIRHA) and international (IITA) agricultural research institutions to contribute to the success of the CORAF transformation strategy;
- The existence of a solid WAVE-CORAF partnership framework to address the needs of mitigating the high pest pressure in the region;
- the nascent efforts to promote climate-smart agriculture through the creation of an organization to pool efforts (Alliance or CSA Platform) around an intervention framework or strategy to converge efforts; and finally
- the adoption of a roadmap focusing on key actions: (i) support for the revision of the RAP and PRIASAN, (2) development of research projects in response to the region's priority needs, and (3) support for regional research institutions (PRASAC, CARBAP, CEBEVIRHA). Based on these conclusions, the following recommendations were made: (i) design and set up the components of the platform; (ii) design and set up the national dialogue frameworks; (iii) organize a regional workshop to upgrade the actors in the national frameworks; (iv) design and validate a regional plan to support countries in policy-research dialogue to promote CSA; (v) organize a regional workshop to identify country priorities; (vi) mobilize research to support preparations for COP 27; and (vii) support the national policy-research dialogue frameworks in implementing their priorities.

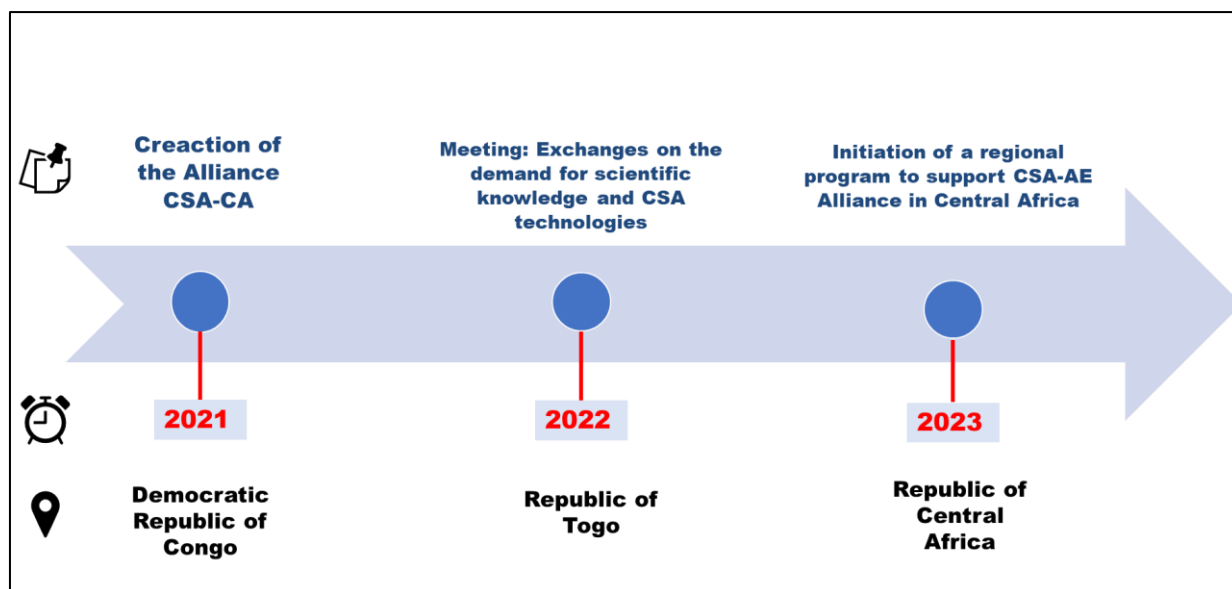


Figure 4: History and development of the Central Africa CSA Alliance

MAPPING CLIMATE CHANGE FUNDING SOURCES AND MECHANISMS FOR CSA ALLIANCES

Reinvigorating CSA alliances requires formulating sound agricultural development and food security policies, seeking funding and implementing concrete actions on the ground (Zougmore et al. 2019). This requires not only technical capacity, but also the ability to mobilize financial resources and skilled human resources. To contribute to this, CORAF has planned a series of activities in its AWPB 2023 for the benefit of the CSA Alliances (WA and CA). The first actions of this plan can be divided into two main groups for each of the two CSA Alliances (West Africa and Central Africa). They include (i) contributing to the mobilization of financial resources and (ii) organizing capacity building meetings and guidelines for the initiation of regional CSA projects/programs. In order to facilitate the mobilization of financial resources for CSA alliances, CORAF commissioned a mapping study of funding organizations and mechanisms for agricultural development and climate change issues in each of the West and Central African regions. These various studies have come to satisfactory conclusions, depending on the region.

Funding sources and mechanisms for the West Africa CSA Alliance

For the WA-CSA Alliance, a total of about 80 potential donors (sources and mechanisms) of funding for CSA initiatives have been identified. 73% of these funding sources are international, funding climate change projects/programs worldwide; 10% are regional, operating only in the West African region; and 17% are national, providing funding and support only for projects/programs in (individual) West African countries. The funding mechanisms are mostly loans and grants. All donors identified are active in the field of climate change, but with different priorities, notably agriculture, water, energy, forestry, etc. The results show that gender issues are very weakly integrated into these initiatives (Figure 5). An analysis of donor interest in each of the three pillars of the CSA shows that most initiatives contribute more to

achieving the objectives of the adaptation and mitigation pillars. Productivity is seen as a result of implementing better agro-climatic adaptation practices.

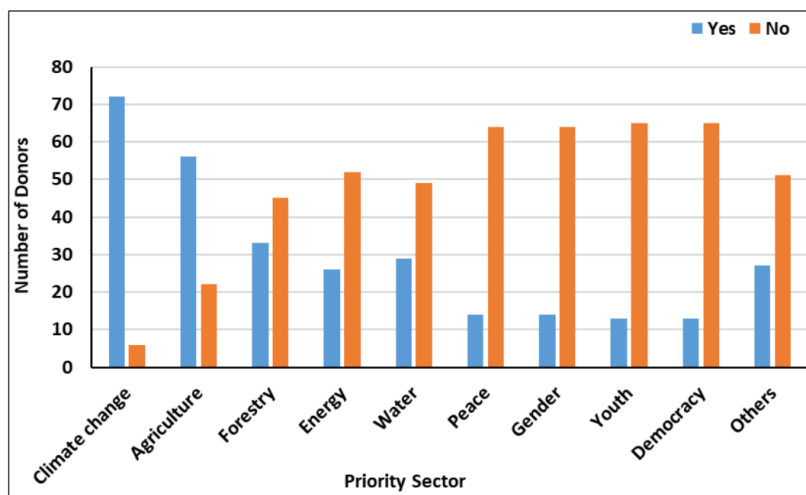


Figure 5: Priority areas for investment by various organizations and donors in the West African agricultural sector

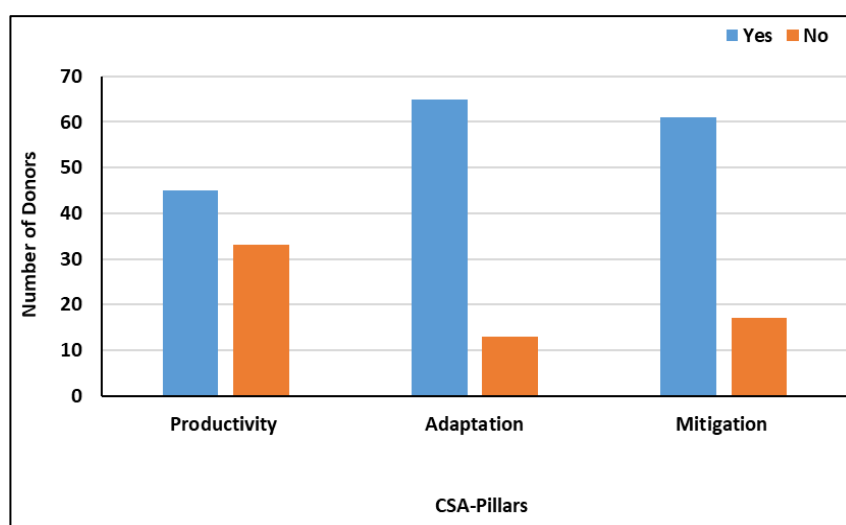


Figure 6: CSA pillars prioritized by investments

Funding sources and mechanisms for the Central Africa CSA Alliance

For the Central African CSA Alliance, 59 sources of funding were identified, of which 52% were international, 19% regional and 29% national. In general, 39% of international funds come from UN agencies, 55% of regional funds come from regional and sub-regional organizations, and 64% of national funds come from NGOs (Figure 7). 86% of funds are grants, 4% are loans and 10% are a mix of loans and grants.

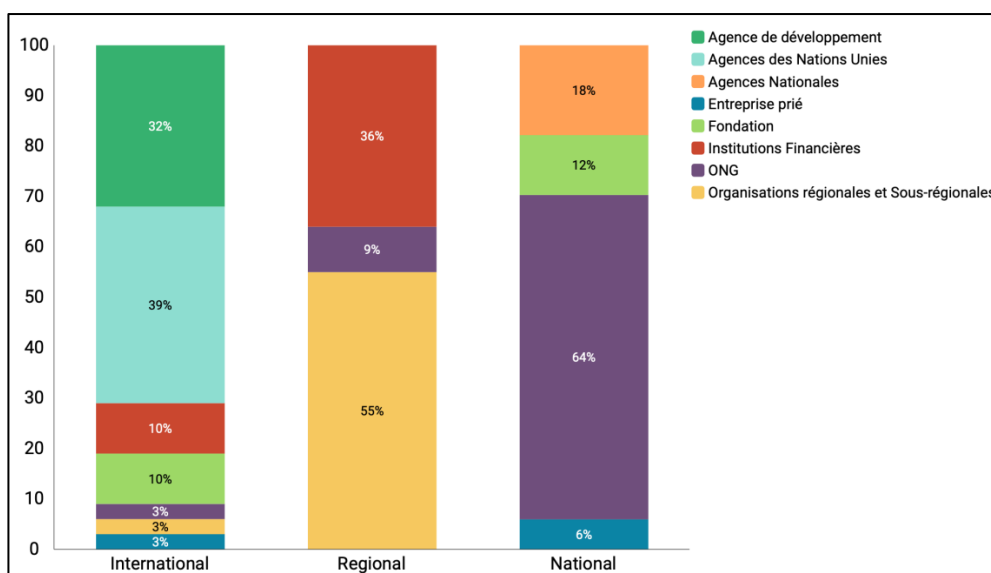



Figure 7: Priority areas for investment by various organizations and donors in the agricultural sector in Central Africa

IDENTIFICATION OF LOCAL AND NATIONAL PLATFORMS OPERATING IN THE FIELD OF CLIMATE CHANGE

INVENTORY OF LOCAL AND NATIONAL PLATFORMS IN WEST AFRICA

The second activity for the WA-CSA Alliance concerned stakeholder consultation for the co-construction of a regional CSA program/project on climate-smart agriculture. CORAF therefore initiated a regional meeting to co-construct a regional CSA project in West Africa. This meeting was held from 15 to 17 May in Pointe-Sarène (Senegal). During this workshop, the various thematic working groups within the Alliance were reorganized to facilitate the analysis of certain key issues in small groups. The first step was for each country working group to identify existing CSA alliances and platforms at national level, on which the actions defined at regional level could be based for implementation at local level. It was up to the members of each group to contribute to the collection of the following information within the alliances at national level: (i) their areas of intervention; (ii) their structures: members, governance bodies (secretariat to coordinate and facilitate operations, core team of experts from strategic organizations, platform assembly, legal and regulatory texts, etc.), articulation of the platform with existing national institutional arrangements, etc.); (iii) their current program of activities (approach, achievements, lessons learned); (iv) their support needs. At the end of this exercise, at least one platform working on CSA and/or agroecology was identified per country. This includes the national framework for stakeholder consultation on agriculture, agroecology, environment or any other sub-sector related to CSA.


-  In Benin, the National consultation framework for agro-ecology stakeholders (CCN-AE), whose mission is to promote the agro-ecological transition by facilitating synergy of action between stakeholders. In addition, several projects have been identified to support the strengthening of the productive base and the development of agro-silvo-pastoral and fisheries product chains and

markets directly linked to climate change. The CCN's current activities are mainly focused on implementing its action plan in line with the planned activities. Support is needed to continue to mobilize funds for the implementation of the Action Plan and to build the capacity of AE stakeholders on CSA issues;

-  In Cabo Verde, the NGO Platform of Cabo Verde (PDO-CV) aims to help strengthen and improve the level of intervention of its member NGOs through concerted action and by promoting their participation in socio-economic development in various sectors: agriculture, livestock, fisheries. Ongoing activities include agricultural development, access to land for farming, access to microfinance, creation of community libraries, livestock development and social stabilization/training for the most vulnerable groups. Support needs are: establishment of regional platforms/mobilization of more financial resources;
-  In Côte d'Ivoire, there is a political will to develop agriculture, improve food security and preserve the environment, with national and EU legislation aimed at promoting the development of CSA in the context of climate change. There is a National Strategy for Climate Smart Agriculture (SNAIC 2018-2025) and a Smart Agriculture Investment Plan (CSAIP 2019). Twenty-five (25) CSA technologies have been identified since 2018. The SNAIC and CSAIP are in line with the PNIA2 (2018-2025), which promotes CSA. With regard to agroecology, Côte d'Ivoire's participation in the Agroecology Program through the Support Project for the Agroecology Transition has led to the creation of a National Consultation Framework (CNN). At CSA level, no meetings are organized due to the lack of a national platform. For the CCN- Agroecology, meetings are organized on an informal basis. Support is needed for the creation of the CSA platform and its operationalization. There is also a need to update the SNAIC, which is due to expire in 2019. Donors will also be asked to help finance the creation and operation of the CSA platform and the CCN Agroecology.
-  In the Gambia, innovation platforms have been established in the mango, groundnut, rice, maize, and vegetable sectors to increase quantity and quality for domestic consumption and export. Current activities include fruit fly control on mangoes, biofortification of maize varieties, climate-smart rice varieties, high-yielding groundnut varieties and the establishment of a market information system. Support is needed to set up structures to coordinate the activities of innovation platforms and to build the capacity of stakeholders.
-  In Mali, the National Environmental Information Management System, which mission is to: (i) network the technical services and development partners involved in the management of natural resources, the living environment and pollution, and the fight against climate change; (ii) create and maintain a space for dynamic dialogue between producers and users of environmental data and information; (iii) structure and organize environmental data and information to ensure the best possible dissemination; (iv) develop national capacity in the management of environmental information. Ongoing activities include (i) updating the list of focal points and deputies; (ii) reviewing the IT architecture of the database, reconfiguring the database, building the capacity of focal points and deputies in database management and greenhouse gas inventories; (iii) updating the 2022 indicators; (iv) monitoring bushfires and projects. Support needs include: (i) capacity building in computer equipment and data collection tools; (ii) operationalization of the regional SNGIE through the establishment of secretariats and the creation of environmental monitoring observatories; (iii) collection of biophysical and socio-economic data; (iv) technical capacity building for data producers;






-  In Niger, (i) the CCAIDACC (framework for cooperation between stakeholders involved in climate change adaptation), to contribute to the exchange of experience on climate change adaptation; (ii) the PNDP/A/CC/SAN (national platform for policy dialog on agriculture, climate change, food security and nutrition), to contribute to the policy dialogue on agriculture, climate change, food security and nutrition; (iii) the IDCC (Integrating climate change), to ensure that the climate change dimension is integrated into strategic program policies, (iv) the PCDD (climate and sustainable development platform) to enrich the dialogue on climate and sustainable development; (v) the CIO (inter-ministerial orientation committee) to validate programming, assessments and evaluations and to monitor policy orientations; (vi) the CMPS (Multi-sector steering committee for strategic programs) to ensure planning and programming and to mobilize stakeholders; (vii) the CNDA (Framework for stakeholder consultation and dialog) to monitor commitments and alignment of PTFs. There are also initiatives for (i) dissemination of cereal prices (SIMA) and livestock prices (SIMB) on local markets and of weather forecasts; (ii) information and training (Farmers' platform, Collective of pastoral associations, Association for the reactivation of livestock farming in Niger). Ongoing activities include coordination and capacity building meetings, FP monitoring and capacity building meetings, orientation meetings, and validation of the quarter's results and outlook. Support needs are technical, material and financial.
-  In Nigeria, (i) Agricultural Research Council of Nigeria Systems to Achieve significant improvements in agricultural productivity, marketing, and competitiveness by generating appropriate technologies and policy options, promoting innovation, establishing a knowledge management capacity and strengthening the agricultural research system. It is developing Climate Smart Agriculture high yield and draught resistance seeds and seedling. It needs support Engage policy makers on the implementation and adoption of CSA practices to increase advocacy to farmers on CSA and promote Rural farm cluster village; (ii) ActionAid Nigeria to build necessary skills and knowledge to be able to practice efficient agroecology and demand accountability for climate justice and public financing for agroecology. The ongoing activities are Advocacy on Agroecology and climate justice to smallholder farmers, public and private sector. Need support to expand advocacy on CSA and Agroecology; (iii) Nigeria Agribusiness Group To be the association for the development and growth of inclusive and sustainable agribusiness across Nigeria and beyond. Engage policy makers on the implementation and adoption of CSA practices. Need a support to engage policy makers on the promoting CSA practices; (iv) Small Scale Women Farmers Organization in Nigeria advocating for and supporting women farmers especially those in rural areas to spur rural village economic development, increase food production through capacity building of smallholder women farmers. The ongoing activities are Advocacy on Agroecology and climate justice to small holder farmers. Need support for the training of farmers on CSA practices and Agroecology adoption; (v) Nigeria Institute of Soil Science. To increase regulation of the practice of Soil Science for increased profitability to all stakeholders and guarantee improved soil management systems that will embrace environmental sustainability and ensure high agricultural productivity and food security in Nigeria. Need support for the training of farmers on CSA practices and Agroecology adoption; (vi) Alliance for Action on Pesticide in Nigeria. Promote the use and appropriate application of agro-chemical in line with climate smart agriculture best practices. Operate demonstration farms that are CSA and agro-ecology compliance for adoption. Support adopted villages with the provision of demonstration farms for training on CSA best practices; (vii) GAFFERTTI. Adopting scalable innovative solutions, through strategic collaborations in sustainable climate action and circular economy projects. Engaging farmers on innovative technology in CSA practice. Support to intensify in the rural areas especially smallholders' farmers the trending innovative technology on CSA for farming activities; (viii) OCP Africa. Promote

agroecology and CSA practices through organic fertilizer practices. Training and engage farmers on the production and use of organic fertilizer. Support to reach out to more farmers across the six zone on the production and use of organic fertilizer; (ix) Organic and Ecology thinking tank in Nigeria. Advocacy in agronomic practices. Activity engaging farmers and relevant stakeholders on CSA practice. Support for advocacy on CSA; (x) Chachavivi Women and girl Child Development Foundation. Promote women engagement in climate smart agriculture and agroecology activities in Nigeria. Training of farmers on CSA and Agroecology best practices. Support for Training and re-training of farmers on CSA and Agroecology best practices.

-  In Senegal, DyTAES - Dynamics for an Agroecological Transition in Senegal. Its mission is to support advocacy for agro-ecological transition. Intervenes in Bignona, Vélingara, Tambacounda, Sine Saloum, Thiès, Fatick, Podor. Current activities include advocacy, awareness-raising, exchange of knowledge and experience, training in agroecology, support for producers in the agroecological transition and support for policymaking. Support needs include: operational funds, creation of new local platforms, dissemination of experiences and experiments, support for the sustainability of activities, involvement of young people, support for the valorization of agroecological products.

Inventory of local and national platforms in Central Africa

In Central Africa, around twenty platforms have been identified at national and local level working on climate change in general and CSA in particular.

-  Cameroon: At the national level, the National Consultation of Farmers' Organizations in Cameroon (CNOP-CAM), ANOPAC, with its REDD+ and CC project, is actively working on climate change.
-  Central African Republic: Particularly noteworthy are the cassava, women, forest and rice platforms, the National Federation of Central African Cattle Breeders, the National consultation of farmers' organizations in the Central African Republic (CNOPCAF), the sustainable management of natural and environmental resources, and the NGO Forests and Sustainable Development;
-  Democratic Republic of Congo (DRC): The efforts in the field of CSA and climate change in general in the DRC are focused on the development of tools to identify platforms involved in the promotion of CSA and the creation of a donor table to better identify funding for the promotion of CSA. These activities are still ongoing.
-  Sao Tomé et Príncipe: National Food and Nutrition Security Council/CONSAN-STP, Agricultural Support Group /ACHA, Rede da Sociedade Civil para Segrurança Alimnetare Nutricional (RESCSAN-STP), Federation of Smallholder Farmers of stp (FENAPA-STP), National Council for Food and Nutrition Security of the Community of Portuguese-speaking Countries /CONSAN-CPLP), Alianças Parlamentar dos Países da África Centra para Segurança Alimentar e Nutricional/RAPACSAN);
-  In Gabon, there are the cassava and beekeeping platforms, and above all the National Consultation of Farmers and Producers' Organizations of Gabon (CNOP);

- Chad has three national initiatives (PMA CVMT, One Health, Pastoral Platform) and eleven local platforms (rice, maize, meat-milk, berbere, mango, GAEL/honey, tomato, onion, sesame, CSA).

CHALLENGES AND SOLUTIONS TO THE ADVERSE EFFECTS OF CLIMATE CHANGE WITHIN CSA ALLIANCES

The second round of group activities was to identify the challenges/problems facing the agricultural sector as experienced by CSA Alliance members and the stakeholders they support, to propose approaches to solutions and to assess the potential impact of these solutions/activities if implemented. To achieve this, new working groups have been set up based on the areas of expertise of each Alliance member. Table 1 presents the challenges, proposed solutions and expected potential impacts by strategic axis within the two regional alliances. These different strategic axes are: (i) policy and organizational, (ii) technical and technological, (iii) food security and nutrition, (iv) gender-youth and development, and (v) communication and knowledge management. These challenges to CSA implementation can be summarized as: scarcity of agricultural water resources, climate variability and climate change, agricultural GHG emissions, integration of information resources, shrinking arable land and land tenure issues, lack of adequate knowledge and information transfer, slow return of benefits and lack of financial support (limited investment), setting the right priorities between farmers and policy makers, and fitting CSA into existing policy frameworks (Zhao et al., 2023; Zerssa et al., 2021; Partey et al., 2018)

Table 1: Challenges/problems, proposed solutions and expected potential impacts

Strategic axis	Challenges or problems identified	Proposed solutions	Expected impact
Policy and Institutional	Lack of political will to support CSA and agroecology initiatives in the region	<ul style="list-style-type: none"> - Lobby ECOWAS, countries and other organizations to raise awareness of the benefits of CSA and agroecology. - Build capacity to integrate CSA and agroecology into national policy and strategy documents 	<ul style="list-style-type: none"> - Awareness of the issues and interests of CSA and agroecology - Effectiveness of CSA and agroecology principles in policy and strategy documents
	Absence and/or inadequate implementation of policies and policy documents related to CSA and agroecology.	<ul style="list-style-type: none"> - Support to countries to develop/update framework documents on CSA and agroecology - Support to countries in implementing framework documents on CSA and agroecology 	<ul style="list-style-type: none"> - Effectiveness of framework documents - Actions and activities actually implemented - Adoption of CSA and Agroecology concepts by policy makers
	Insufficient coordination and cooperation between CSA and Agroecology actors	<ul style="list-style-type: none"> - Organize meetings to share experiences and knowledge between alliances and platforms at different levels. 	<ul style="list-style-type: none"> - Effectiveness of experience and knowledge sharing - Stakeholder ownership of CSA and agroecology best practices

	at regional, national and local levels.	- Conduct annual assessments of CSA and Agroecology framework documents, using the AIS PPI tool to document advocacy.	- Availability of data on the implementation of framework documents
	Weak mobilization of resources to finance CSA and Agroecology platforms and initiatives	- Create a regional fund for CSA and Agroecology -Strengthen international partnerships with donors to mobilize resources - Promote incentives for investment in CSA and Agroecology	- Internal resource mobilization efforts - Increased mobilization of internal and external resources - Increased investor interest in financing CSA and agroecology
Technical: Technologies & Innovations from CSA & AE	Weak scaling of Technologies & Innovations (CSA & AE)	- Develop and improve scaling strategies with a special focus on digital communication channels - Capacity-building for digital channel operators (community radio stations, digital platforms, etc.) - Establish and operate technology villages and/or climate-smart villages	- Development and distribution of digital communication channels adapted to the scale of CSA-AE T&I - Creation of a pool of digital channel animators at community level in each country - CSA-AE T&I adoption guaranteed at Community level
	Lack of specific CSA-AE skills within research structures	- Strengthen the capacity of research actors in specific CSA-AE themes - Facilitate the exchange of experience and knowledge between research actors in NARS and CGIAR centers	- Improvement of the human capital in the field of CSA-AE
	Insufficient T&I aimed at GHG sequestration/mitigation	- Develop research programs on the design and evaluation of T&I directly related to GHG sequestration/mitigation - Promote GHG mitigation strategies - Establish mechanisms to promote and maintain the balance between the 3 fundamental pillars of CSA: adaptation, productivity and mitigation.	- Availability of appropriate T&I for GHG sequestration/mitigation - Increasing resilience to climate change
	Weak links and synergies between research and extension services	- Create and strengthen linkages between research and the CSA-AE T&I scaling system	- Existence and promotion of a permanent framework for dialogue between research and agricultural extension services to accelerate the uptake of T&I.
	Little account taken of endogenous knowledge	-Inventory, catalog and disseminate endogenous agricultural knowledge	Documentation and incorporation of endogenous knowledge in the

		<p>directly related to CSA and AE</p> <ul style="list-style-type: none"> - Evaluate the potential of endogenous knowledge in the implementation of CSA and AE approaches 	<p>implementation of CSA and AE concepts</p>
	<p>Low private sector involvement and participation in T&I financing and development</p>	<ul style="list-style-type: none"> - Raise awareness and encourage private sector actors to contribute to financing research and production initiatives in climate-smart T&I and agroecology. - Introduce royalty levies on private sector companies and businesses to fund research 	<ul style="list-style-type: none"> - The private sector has a better understanding of the challenge of financing T&I research and production activities. - Availability of funding for research
Food security, nutrition and market	<p>Lack of improved seeds (in terms of quantity and quality)</p>	<ul style="list-style-type: none"> - Support seed companies and encourage the development of new varieties tolerant to water stress and emerging diseases. - Making improved seeds accessible and affordable - Creating improved breeds and developing forage banks 	<ul style="list-style-type: none"> - Increased use of improved seeds to boost yields
	<ul style="list-style-type: none"> - Decline in soil fertility and agricultural productivity (crops and livestock) 	<ul style="list-style-type: none"> - Promotion of SLM (Sustainable Land Management) measures directly linked to CSA and AE - Developing morpho-pedoclimatic maps and promoting their use 	<ul style="list-style-type: none"> - Improving soil fertility - Making better use of agricultural resources
	<p>Difficulties in accessing and securing rural land and conflicts between farmers and breeders</p>	<ul style="list-style-type: none"> - Ensuring compliance with statutes (rural land regulations) and land use - Awareness raising and development of customary tenure systems 	<ul style="list-style-type: none"> - Reducing inequities in land distribution and use - Preventing and reducing rural land conflicts
Gender, Youth and Agricultural Development	<p>No gender data available for CSA-AE</p>	<ul style="list-style-type: none"> - Carry out a gender data collection survey and create a dynamic database on gender and CSA/AE 	<p>Existence of a database to facilitate gender analysis and studies.</p>
	<p>Limited income sources for women</p>	<p>Raise awareness, encourage and support women in CSA/AE-based agricultural entrepreneurship, with particular emphasis on seed production.</p>	<p>Increasing the number of women entrepreneurs using climate-smart agricultural technologies/agroecology</p>

	CSA aspects not included in training programs	Development and integration of specific CSA curricula in training programs on climate change, based on CSA/agroecology apprenticeships	The inclusion of CSA in training programs will help young people understand the issues at stake and to get involved in CSA professions.
Communication and knowledge management	The non-existence of a communication and knowledge management strategy within CSA alliances	- Develop an CSA communication and knowledge management strategy with an operational smart action plan. - Integrate a communications budget into the Alliances' various projects	Creating a new communication dynamic for CSA activities
	Language barriers	Translate communication materials into the main local languages, depending on the region.	Facilitating the process of scaling up technologies and innovations
	No human resources database for CSA communication	Creation of a database of journalists and media presenters (including social and professional networks) on CSA	Creating a new communication dynamic for CSA activities

LESSONS LEARNED, PROSPECTS AND RECOMMENDATIONS

Lessons learned

The lessons learned from this process of creating and revitalizing regional CSA alliances in West and Central Africa are many and varied:

- **The strong commitment of regional and national institutions to support the actions of the Alliances:** regional and national institutions involved in the agricultural sector have shown their presence and willingness to support this new dynamic launched by CORAF within the CSA alliances. This has already created favorable conditions for meeting the political and organizational challenges identified.
- **The participatory approach used,** which enabled the various stakeholders to share their experiences, expertise and needs in relation to CSA:

- We noted a high level of motivation among the members of the CSA Alliance, as demonstrated by their responsiveness and contributions during the group work.
- The mobilization and involvement of the various CSA stakeholders (regional and national policy makers, agricultural research, national PNIASAN focal points, UNFCCC focal points, producer organizations, civil society, etc.);
- Bringing together the approaches and concerns of different stakeholders for consideration.
- Co-construction and joint identification of the constituent elements of a regional program/project is a participatory process that should yield good results and enable the program/project development process to begin.

Prospects

Prospects for CSA alliances can be summarized as follows:

- Developing terms of reference for the recruitment of two consultants to assist CSA alliances in drawing up regional CSA programs/projects (PR-CSA) based on the defined components,
- Finalization and validation of two CSA programs/projects: PRCSA-WA for West Africa and PRCSA-CA for Central Africa.
- Seeking funding for PRCSA implementation
- Effective launch and implementation of PRCSA
- Capitalizing on the experience of co-construction and PRCSA implementation processes
- Institutionalizing national platforms and integrating them into existing national organizational frameworks on climate change

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